ARPHA Conference Abstracts 4: e65015
doi: 10.3897/aca.4.e65015

Conference Abstract

Alcohol keeps eDNA at the party longer

Sarah Licul‡, Rachael Impey‡, Andrew Weeks‡

‡ EnviroDNA, Melbourne, Australia

Corresponding author: Rachael Impey (rimpey@envirodna.com)

Received: 25 Feb 2021 | Published: 04 Mar 2021

Citation: Licul S, Impey R, Weeks A (2021) Alcohol keeps eDNA at the party longer. ARPHA Conference Abstracts 4: e65015. https://doi.org/10.3897/aca.4.e65015

Abstract

For a typical eDNA water study, water will be filtered on site, before prompt transfer to a laboratory for DNA extraction and required scientific analysis. In a setting where transport is quick and available, this is a straightforward process. However, many of our studies can occur in remote Australia where sample preservation presents many logistical challenges. Typically, we advise clients to store eDNA water filters after sampling below 4 °C to ensure minimal DNA degradation. For many clients however, field studies often occur in an isolated setting without adequate refrigeration facilities, and as such present challenges for this process. Rather than compromise on sample integrity, EnviroDNA conducted a pilot study into the use of alternate preservation methods on our most commonly used 0.22 mm Sterivex filters. With help from our friendly neighbourhood goldfish tank, our standard 4 °C protocol was compared to a variety of conditions including filled ethanol filters, flushed ethanol filters, lysis buffer and silica bead storage conditions at both 4 °C and room temperature. The study, conducted at various time points over 14-days, used qPCR to quantify the amount of DNA extracted from the filter. Our results revealed that storage within or using flushed ethanol, allowed the samples to be stored for longer time intervals at room temperature, with similar, or in some cases, improved DNA elutions. This protocol optimisation has allowed us to offer an alternate sample storage protocol for clients, expanding the availability and accessibility of eDNA biodiversity assessments around Australia.

Keywords

eDNA, sample preservation, ethanol

Presenting author

Rachael Impey

Presented at

1st DNAQUA International Conference (March 9-11, 2021)